

Welcome to AG Retreat 2003

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Charge for Today and Tomorrow

Your mission today and tomorrow is to have some fun!

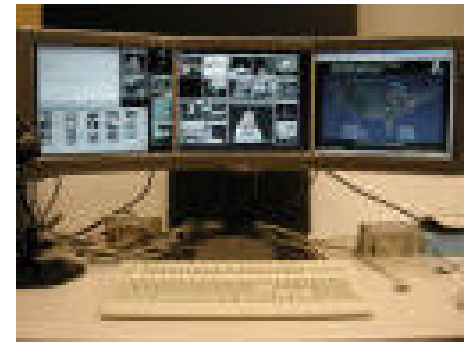
- Learn something new about the AG and about the AG community
 - Participate in the sessions..
- Make plans to become an AG2 developer
 - We plan more AG2 developer oriented tutorials
- Volunteer for the AGDP and the Mac and Linux ports..
- Integrate your favorite app into the AG
- Commit to building a venue for your interest group

Progress with AG



Deployment and Development

- Big progress on deployment of nodes and sites.
- Commercial deployment and next generation version under development
- Access Grid is now in use at more than 200 locations
 - Many academic sites, national labs, commercial sites, government agencies, etc.
- PIG, single node box, room based systems..
 - specs for high-definition AG under development
- Major drivers include:
 - SWOF, g2g, fusion collaboratory, teragrid, etc



Global Grid Forum



- Advance Collaboration Environments RG
 - Bring the needs of ACE to Grid standards community
 - Promote standard interfaces/protocols
 - AG2 will be proposed as a set of standards in FY04
- Grid forum develops standards related to the Grid
 - Working Groups, Research Groups and Research Symposia
- ACE Research Group is in the Applications

- GGF8
- "Building Grids - Obstacles & Opportunities "

HPDC-12
22-24 June 2003

GGF8 - The Eighth Global Grid Forum
24-27 June 2003

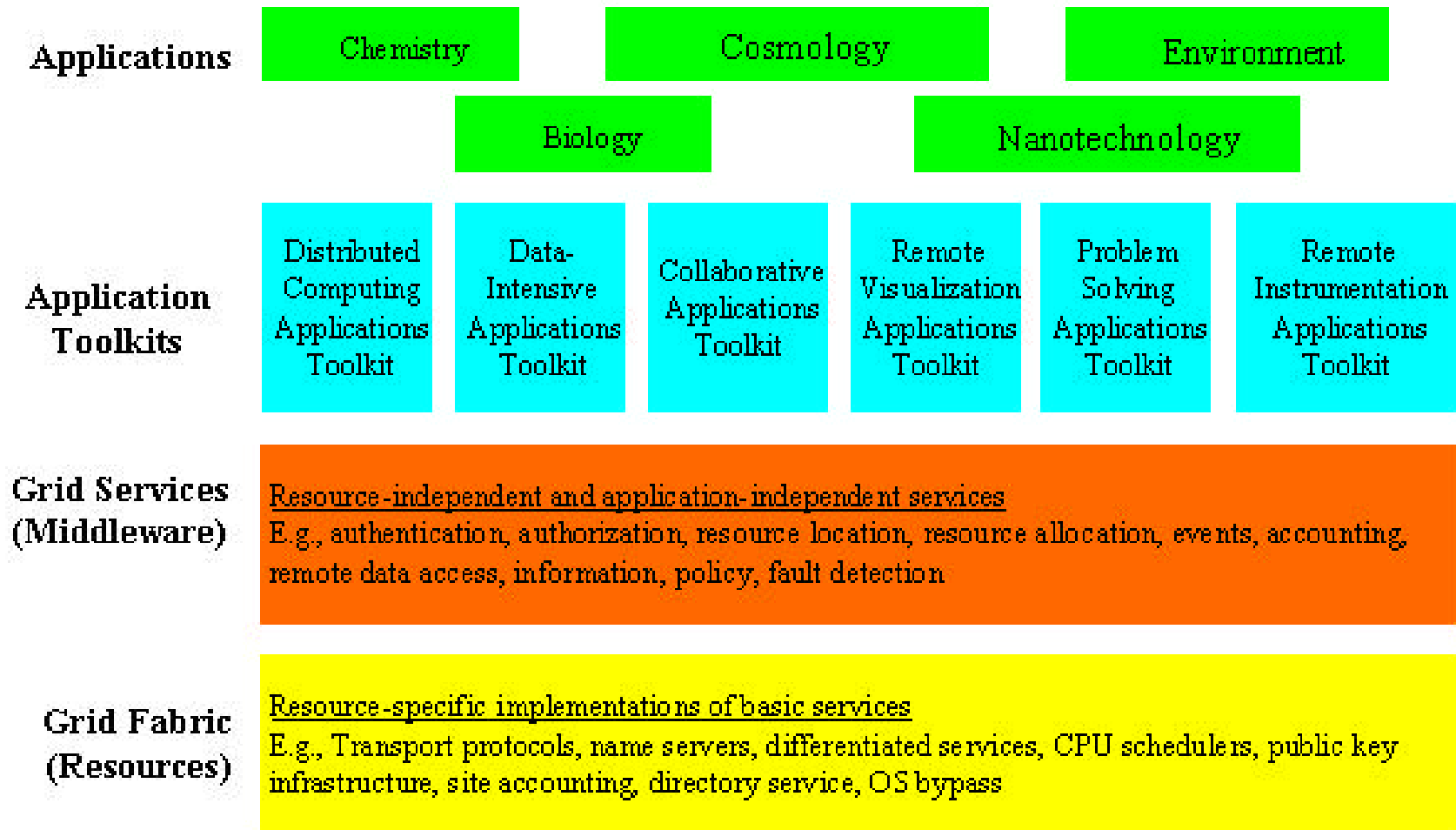
Seattle, WA, USA

- *250+ participants already confirmed.....*
- ****HPDC-12 REGISTRATION NOW OPEN****
- ****ADVANCE REGISTRATION NOW OPEN****

Access Grid version II: AG2

- Drivers
 - Grid integration (Globus, OGSA)
 - Applications integration
 - Workspace integration (docking concept)
 - Advanced Network Services
 - Integration with advanced display environments
- AG2 is a platform for software development
 - Makes AG part of the grid foodchain
 - Builds on standards
- We need beta testers and developers...
- AG2 is a Giant leap beyond ag1.0

The Grid Software Stack



Towards the BioGrid

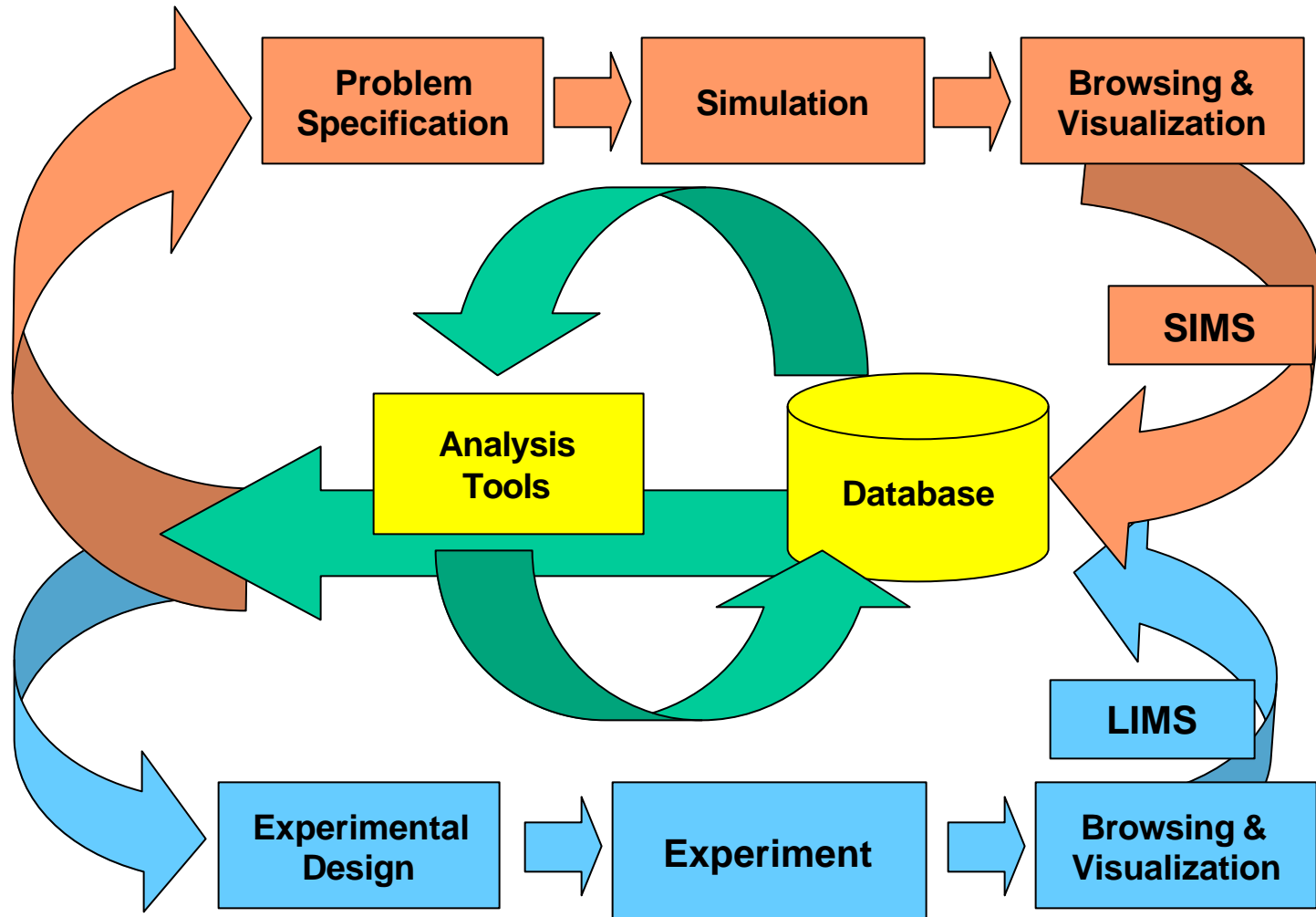
- Grid based environment for computational and mathematical biology
 - Scalable computational tools and datasets
 - Collaborative workspaces
 - Integrated visualization environments
 - Integrated data systems and workflow systems
- swof, model, ref arch, labs

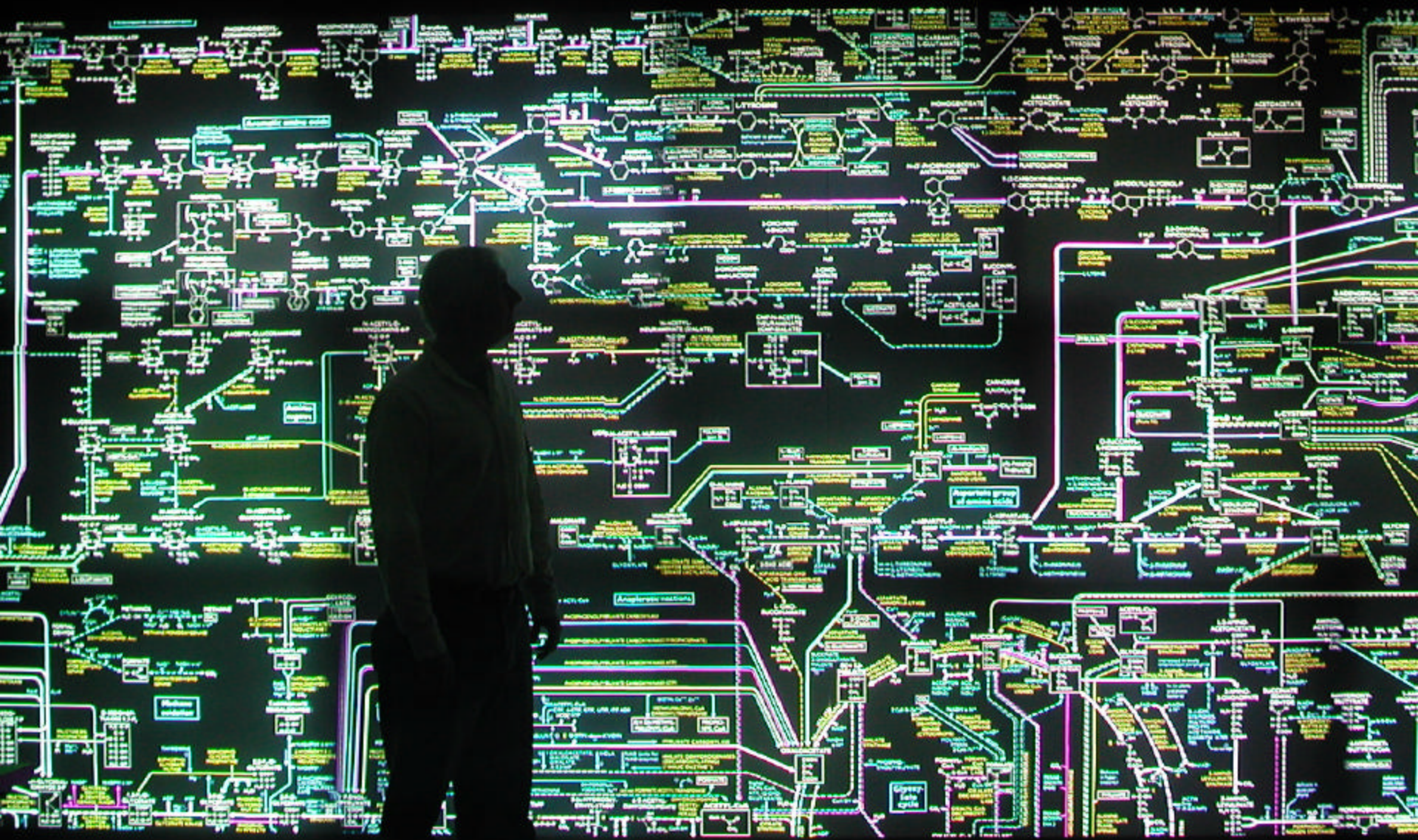
Access Grid and Biology

- Biology perhaps more than any other discipline can benefit from Access Grid
 - Biology is data intensive
 - Biology is highly distributed
 - Biology is moving quickly
 - Biology is transitioning from an experimental science to a theory and computing driven science
 - Biologists are already dependent on the web
- The productivity gains from BioGrids will directly impact drug development and delivery of medical care



An Integrated View of Simulation, Experiment, and Bioinformatics





An Example BioGrid Services Model

Domain Oriented Services

- Drug Discovery
- Microbial Engineering
- Molecular Ecology
- Oncology Research

Basic BioGrid Services

- Integrated Databases
- Sequence Analysis
- Protein Interactions
- Cell Simulation

Grid Resource Services

- Compute Services
- Workflow Services
- Data Service
- Collaboration Services

Why Biology is an important Access Grid Application

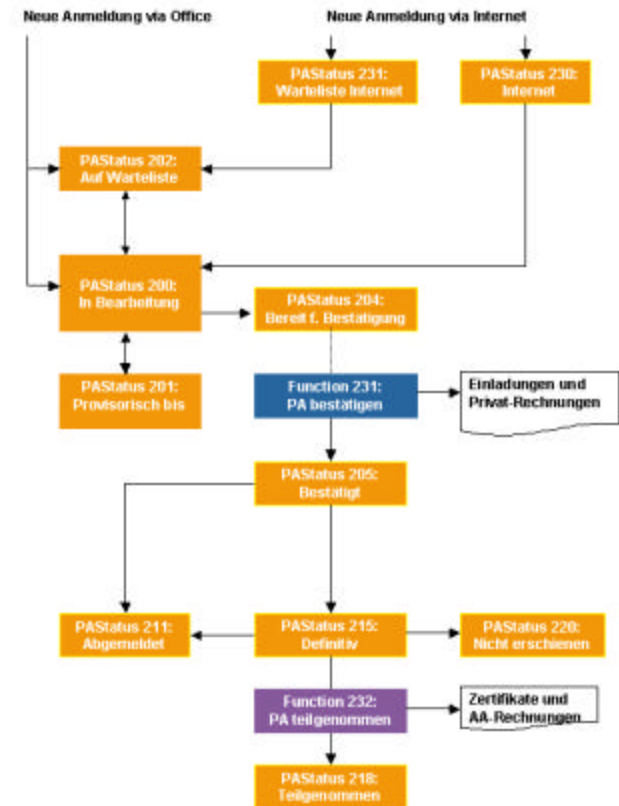
- Safe and abundant food supplies
- Sustainable and benign energy sources
- Effective management of disease and aging
- Novel materials and renewable industrial feedstocks
- Advanced computational devices beyond Moore's law
- Wide variety of molecular scale machinery
- Self-assembly and self-reproduction technologies

TeraGrid

- NSF's Largest Computing Infrastructure Project
 - Building and connecting supercomputers at five locations
 - 40 Gbps network
 - Integrated software environment
 - Learn Once Run Anywhere
 - Grid hosting environment
 - Software stack aimed at taking guess work out of Grid computing
- AG critical role for project management but also visualization delivery
 - Collaborative visualization via AG is a design point
 - Capability based on AG2

DAWN and Related Projects

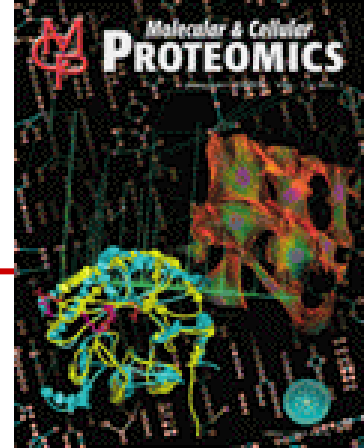
- Development of virtual venues model
 - Workspaces venues
 - Analysis Tools+ Datasets
 - Certified Workflows
 - Historical Context of Decisions
 - Resource handles (Grid allocations, reservations)
 - Venue as a knowledge environment
 - Place where knowledge is created and insight is generated
 - Place where groups work together on hard problems
- Requires dramatic new service capabilities
 - Authoring of venues and publishing of resources



Proposed Center for Multimodal Communication



- NSF Center being proposed by University of Chicago and others (UIUC, UCSD, etc.)
- Goal is to create a virtual laboratory for the study of multimodal communication
 - Aural, Visual, Gesture, etc.
- Virtual laboratory will be based on AG2
 - Virtual venues for video analysis
 - Virtual venues for each participant's laboratory
 - Virtual venues for group meetings etc.
- Connects AG research with social science research



Proposed Chicago Bioinformatics Consortium

- Chicago area Universities and Argonne
 - UC, UIC, NWU, ANL
- Consortium for advanced capabilities in proteomics
 - Study of the sets of proteins that occur in organisms
 - Fourier transform based mass spec
- Network or six new AG nodes gluing the sites together
 - Data analysis environment integrated in the Virtual Venues
 - Venues for teaching, seminars, etc.
- Searle Foundation and Chicago Community Trust
 - Private foundations that support biomedical research

NSF PACI Program



- NSF Alliance
 - Played an important role in the creation of the Access Grid
 - Continues to be a source for ideas and resources for the AG development
- SWOF is prototyping two “Workspaces of the Future” based on the Access Grid
 - Computational Molecular Biology
 - Atmospheric Sciences
- SWOF is a major project “Expedition” of the Alliance
 - Demos at the all hands meeting in two weeks!!



DOE Scidac Collaboratories



- Middleware for Group-to-Group Collaboration
 - Core development support for the Access Grid
 - Virtual Venues, Workspace Docking, Grid Security, Node Management, Asynchronous Collaboration, Services models etc.
- DOE Fusion Collaboratory
 - Building a collaboratory to support fusion research
 - General Atomics, Princeton, MIT
 - Virtual fusion control rooms
 - Shared data analysis environment
- Proposed Active Spaces and AG UI project
 - Improved AG UI
 - Integration of

Workshop on Advanced Collaboration Environments @ GGF8/HPDC in Seattle



- Invited talks and contributed papers
 - Forum for discussion of research issues in ACEs
 - Third annual meeting
- Charlie Catlett's talk



What's Next \Rightarrow Active Spaces

- Proactive Environments
 - Models of use
 - Situational awareness
- Spontaneous integration of information technology resources in an environment
 - Displays, services, input devices, communications, workflows
- Integration of Tiled Displays, PDAs, Auxillary displays etc
 - Lab of the future enterprises
 - Push model for AG3
- Visiting slots for AG developer
- Visiting slots for AS researchers



Thanks..

- Mike Papka
- Justin Binns
- LaJoyce Bullock
- Mary Fritsch
- Ti Leggett
- Jennifer Teig von Hoffman
- Cheryl Zidel

- FL crew

- Insors Communications for the cool shirts

- ANL and APS

Pathway Explorer on μ Mural Tiled Display

